

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (currently amended): A method for a transcoder for ~~of~~ transcoding between a first compression codec and a second compression codec, said first and second codecs being of pulse type and using multipulse dictionaries in which each pulse has a position marked by an associated index, wherein the method comprises the steps performed by the transcoder:

- a) ~~where appropriate,~~ the transcoder adapting coding parameters between said first and second codecs;
- b) a decoder of the transcoder obtaining from the first codec a selected number of pulse positions and respective position indices associated therewith;
- c) for each current pulse position of given index, a module of the transcoder forming a group of pulse positions including at least the current pulse position and the pulse positions with associated indices immediately below and immediately above the given index;
- d) selecting as a function of pulse positions accepted by the second codec at least some of the pulse positions in an ensemble constituted by a union of said groups formed in step c); and
- e) sending the selected pulse positions to the second codec for coding/decoding from the positions sent; said selection step d) then involving a number of pulse positions less than the total number of pulse positions in the dictionary of the second codec.

Claim 2 (previously presented): A method according to claim 1, the first codec using a first number of pulses in a first coding format, and said selected number in step b) corresponds to said first number of pulse positions.

Claim 3 (previously presented): A method according to claim 2:

- the first codec using a first number of pulse positions in a first coding format; and
 - the second using a second number of pulse positions in a second coding format;
- wherein the method further includes a step of discriminating between the following situations:

- the first number is greater than or equal to the second number; and
- the first number is less than the second number.

Claim 4 (previously presented): A method according to claim 3, wherein the first number is greater than or equal to the second number, and each group formed in step c) includes right-hand neighbor pulse positions and left-hand neighbor pulse positions of said current pulse position of given index and the respective numbers of left-hand and right-hand neighbor pulse positions are selected as a function of a complexity/transcoding quality trade-off.

Claim 5 (previously presented): A method according to claim 4, wherein there is constructed in step d) a subdirectory of combinations of pulse positions resulting from intersections of:

- an ensemble constituted by a union of said groups formed in step c); and
- pulse positions accepted by the second codec,

so that said subdirectory has a size less than the number of pulse position combinations accepted by the second codec.

Claim 6 (previously presented): A method according to claim 5, wherein, after step e), said subdirectory is searched for an optimum set of positions including said second number of positions at the level of the second coder.

Claim 7 (previously presented): A method according to claim 6, wherein the step of searching for the optimum set of positions is effected by means of a focused search to accelerate the exploration of said subdirectory.

Claim 8 (previously presented): A method according to claim 1, wherein said first codec is adapted to deliver a succession of coded frames and the respective numbers of pulse positions in the groups formed in step c) are selected successively from one frame to the other.

Claim 9 (previously presented): A method according to claim 3, wherein:

- the first number is less than the second number,

- a further test is effected to determine if the pulse positions provided in the second number of pulse positions are included in the pulse positions of the groups formed in step c), and,

- in the event of a negative result of said test, the number of pulse positions in the groups formed in step c) is increased.

Claim 10 (previously presented): A method according to claim 3, wherein it further discriminates the situation in which the second number N_s is between the first number N_e and twice the first number N_e ($N_e < N_s < 2N_e$) and if so:

c1) the N_e pulse positions are selected from the outset; and

c2) there is further selected a complementary number of pulse positions $N_s - N_e$ defined in the immediate neighborhood of the pulse positions selected in step c1).

Claim 11 (previously presented): A method according to claim 1, wherein:

- said first codec operating with a given first sampling frequency and from a given first subframe duration, said coding parameters for which said adaptation is carried out in step a) include a subframe duration and a sampling frequency, and

- said second codec operating with a second sampling frequency and a second subframe duration, and the following four situations are distinguished in step a):

- the first and second durations are equal and the first and second frequencies are equal;

- the first and second durations are equal and the first and second frequencies are different;

- the first and second durations are different and the first and second frequencies are equal; and

- the first and second durations are different and the first and second frequencies are different.

Claim 12 (previously presented): A method according to claim 11, wherein the first and second durations are equal and the first and second sampling frequencies are different, and wherein the method includes steps of:

a1) direct time scale quantization from the first frequency to the second frequency; and

a2) determination as a function of said quantization of each pulse position in a subframe with the second coding format characterized by the second sampling frequency from a pulse position in a subframe with the first coding format characterized by the first sampling frequency.

Claim 13 (previously presented): A method according to claim 12, wherein the quantization step a1) is effected by calculation and/or tabulation on the basis of a function which at a pulse position in a subframe with the first format establishes the correspondence of a pulse position in a subframe with the second format, said function substantially taking the form of a linear combination involving a multiplier coefficient corresponding to the ratio of the second sampling frequency to the first sampling frequency.

Claim 14 (previously presented): A method according to claim 13, wherein, to pass conversely a pulse position in a subframe with the second format to a pulse position in a subframe with the first format, there is applied an inverse function to said linear combination applied to a pulse position in a subframe with the second format.

Claim 15 (previously presented): A method according to claim 11, wherein the first and second durations are equal and the first and second sampling frequencies are different, and wherein the method comprises the steps of:

a'1) oversampling a subframe with the first coding format characterized by the first sampling frequency at a frequency equal to the lowest common multiple of the first and second sampling frequencies; and

a'2) applying to the oversampled subframe low-pass filtering followed by undersampling to obtain a sampling frequency corresponding to the second sampling frequency.

Claim 16 (previously presented): A method according to claim 15, wherein the method continues by obtaining, by means of a thresholding method, a number of positions which can be variable where appropriate.

Claim 17 (previously presented): A method according to claim 12, wherein it further includes a step of establishing the correspondence for each position of a pulse of a subframe

with the first coding format characterized by the first sampling frequency of a group of pulse positions in a subframe with the second coding format characterized by the second sampling frequency, each group including a number of positions that is a function of the ratio between the second sampling frequency and the first sampling frequency.

Claim 18 (previously presented): A method according to claim 11, wherein the first and second subframe durations are different,

and wherein the method includes the steps of:

- a20) defining an origin common to the subframes of the first and second formats;
- a21) dividing successive subframes of the first coding format characterized by a first subframe duration to form pseudosubframes of duration corresponding to the subframe duration of the second format;
- a22) updating said common origin; and
- a23) determining the correspondence between the pulse positions in the pseudosubframes and in the subframes with the second format.

Claim 19 (previously presented): A method according to claim 18, wherein it also discriminates the following situations:

- the first and second durations are fixed in time; and
- the first and second durations vary in time.

Claim 20 (previously presented): A method according to claim 19, wherein the first and second durations are fixed in time and the position in time of said common origin is periodically updated whenever boundaries of respective subframes of first and second duration are aligned in time.

Claim 21 (previously presented): A method according to claim 19, wherein the first and second durations vary in time and:

- a221) respective summations of the durations of subframes with the first format and the durations of subframes with the second format are effected successively;
- a222) equality of the two summations is detected, defining a time of updating said common origin; and

a223) said two summations are reset, after said equality is detected, for future detection of a next common origin.

Claim 22 (currently amended): A software product adapted to be stored in a memory of a processor unit, in particular a computer or a mobile terminal, or in a removable memory medium adapted to cooperate with a reader of the processor unit, the software product including instructions that when executed by the processor unit for implementing implement a method of a transcoder for ~~of~~ transcoding between a first compression codec and a second compression codec, said first and second codecs being of pulse type and using multipulse dictionaries in which each pulse has a position marked by an associated index, said method including the following steps to be performed by the transcoder:

- a) ~~where appropriate,~~ adapting coding parameters between said first and second codecs;
 - b) a decoder of the transcoder obtaining from the first codec a selected number of pulse positions and respective position indices associated therewith;
 - c) for each current pulse position of given index, a module of the transcoder forming a group of pulse positions including at least the current pulse position and the pulse positions with associated indices immediately below and immediately above the given index;
 - d) selecting as a function of pulse positions accepted by the second codec at least some of the pulse positions in an ensemble constituted by a union of said groups formed in step c); and
 - e) sending the selected pulse positions to the second codec for coding/decoding from the positions sent;
- said selection step d) then involving a number of pulse positions less than the total number of pulse positions in the dictionary of the second codec.

Claim 23 (currently amended): A ~~system~~ transcoder for transcoding between a first compression codec and a second compression codec, said first and second codecs being of the pulse type and using multipulse dictionaries in which each pulse has a position marked by an associated index, said ~~system~~ transcoder comprising a memory adapted to store instructions of a software product comprising computer readable instructions that when

executed by the transcoder carry out ~~for carrying out~~ the following steps to be performed by the transcoder:

- a) ~~where appropriate~~, adapting coding parameters between said first and second codecs;
 - b) a decoder of the transcoder obtaining from the first codec a selected number of pulse positions and respective position indices associated therewith;
 - c) for each current pulse position of given index, a module of the transcoder forming a group of pulse positions including at least the current pulse position and the pulse positions with associated indices immediately below and immediately above the given index;
 - d) selecting as a function of pulse positions accepted by the second codec at least some of the pulse positions in an ensemble constituted by a union of said groups formed in step c); and
 - e) sending the selected pulse positions to the second codec for coding/decoding from the positions sent;
- said selection step d) then involving a number of pulse positions less than the total number of pulse positions in the dictionary of the second codec.